

03-01-00

AT

jc760 U.S. PTO  
02/29/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



jc511 U.S. PTO  
09/516973  
02/29/00

Applicant: Rautiainen

Serial No. TO BE ASSIGNED

Corresponding to PCT/FI98/00654, filed 25 August 1998

Filed: 29 February 2000

Docket No.: 602.314USW1

Title: PROCEDURE FOR SETTING UP A CALL IN A WIRELESS LOCAL LOOP

CERTIFICATE UNDER 37 C.F.R. 1.10:

'Express Mail' mailing number: EL384201546US

Date of Deposit: 29 February 2000

The undersigned hereby certifies that this Transmittal Letter and the paper or fee, as described herein, are being deposited with the United States Postal Service 'Express Mail Post Office To Addressee' service under 37 CFR 1.10 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231

By:   
Theresa Jurek

Box Patent Application  
Assistant Commissioner for Patents  
Washington, D.C. 20231

**REQUEST FOR CONTINUATION OF AN INTERNATIONAL APPLICATION UNDER 37 C.F.R. §1.53(b)**

This is a request for filing a continuation application under 37 C.F.R. §1.53(b) of prior pending international application number PCT/FI98/00654 filed on 25 August 1998 entitled PROCEDURE FOR SETTING UP A CALL IN A WIRELESS LOCAL LOOP, which designated the United States.

1. ☒ Enclosed is a patent application containing 8 pages of specification, 7 claims and 2 sheet(s) of drawings.
2. ☒ A preliminary amendment is enclosed.
3. ☒ Please amend the specification by inserting the following paragraph after the title:

This application is a continuation of international application serial number PCT/FI98/00654, filed 1 September 1997.

4. ☐ Small entity status
  - a. ☐ A small entity statement is enclosed.
  - b. ☐ A small entity statement was filed in the prior non provisional application.
  - c. ☐ is no longer claimed.

The filing fee is calculated below

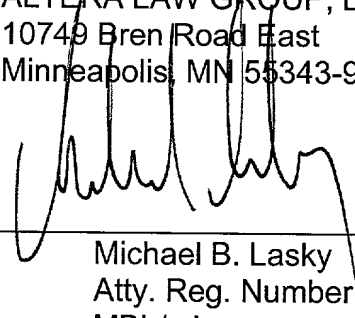
CLAIMS				
	Number Filed	Number Extra	Rate	Fee
Total Claims	7	0	X \$18.00	\$
Indep. Claims	1	0	X \$78.00	\$
Multiply Dependent Claims				\$
Basic Fee				\$ 690.00
TOTAL				\$ 690.00

5. ☒ Payment of filing fees  
☐ A check in the amount of \_\_\_\_\_ is enclosed.  
☐ Please charge Deposit Account Number 50-1038.  
☒ Is deferred.
6. ☒ The Commissioner is hereby authorized to credit any overpayment or charge any fees required under 37 C.F.R. §1.16-1.18 to Deposit Account Number 50-1038.
7. ☒ The priority of Finnish application number 973579, filed 1 September 1997, is claimed under 35 U.S.C. §119.
8. ☒ An unsigned Declaration is enclosed.
9. ☐ An assignment of the invention to \_\_\_\_\_, Recordation Form Cover Sheet (Patents Only) and a check in the amount of \$40.
10. ☐ An Information Disclosure Statement, Form PTO 1449 and copies of \_\_\_\_\_ citations are enclosed.
11. ☒ Correspondence Address
12. ☒ Address all correspondence to Michael B. Lasky.
13. ☐ Also enclosed:
14. ☒ A return postcard is enclosed.

Respectfully submitted,

ALTERA LAW GROUP, LLC  
10749 Bren Road East  
Minneapolis, MN 55343-9056

Dated: 29 February 2000

  
Michael B. Lasky  
Atty. Reg. Number 29,555  
MBL/mka

S/N UNKNOWN

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Rautiainen Serial No.: UNKNOWN  
Filed: CONCURRENT HERewith Docket No.: 602.314USW1  
Title: PROCEDURE FOR SETTING UP A CALL IN A WIRELESS LOCAL LOOP

---

CERTIFICATE UNDER 37 CFR 1.10

'Express Mail' mailing label number: EL384201546US

Date of Deposit: 29 February 2000

I hereby certify that this correspondence is being deposited with the United States Postal Service 'Express Mail Post Office To Addressee' service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

By: 

Name: Theresa Jurek

PRELIMINARY AMENDMENT

Box Patent Application  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Please enter the following preliminary amendment into the above-referenced application.

ABSTRACT

Please insert the attached abstract into the application as the last page thereof.

CLAIMS

Please amend the claims as follows:

In claim 4, line 1, please remove "or 3".

In claim 5, lines 1-2, please replace "in any one of claims 2-4" with --in claim 2--.

In claim 6, lines 1-2, please replace "in any one of claims 1-5" with --in claim 1--.

In claim 7, lines 1-2, please replace "in any one of claims 1-5" with --in claim 1--.

## **REMARKS**

The above preliminary amendment is made to insert an abstract page into the application and to remove multiple dependencies from the following claims: 4, 5, 6, and 7.

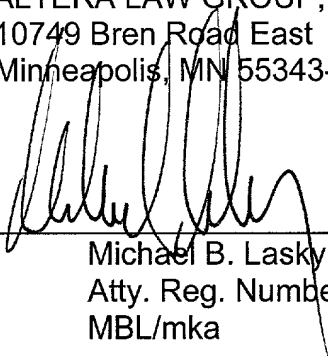
Applicant respectfully requests that this preliminary amendment be entered into the record prior to calculation of the filing fee and prior to examination and consideration of the above-identified application.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Michael B. Lasky at (612) 912-0527.

Respectfully submitted,

ALTERA LAW GROUP, LLC  
10749 Bren Road East  
Minneapolis, MN 55343-9056

Dated: 29 February 2000



---

Michael B. Lasky  
Atty. Reg. Number 29,555  
MBL/mka

WO 99/12376

PCT/FI98/00654

1

## PROCEDURE FOR SETTING UP A CALL IN A WIRELESS LOCAL LOOP

The present invention relates to a procedure as defined in the preamble of claim 1.

5 In a wireless local loop (WLL, Wireless Local Loop or RLL, Radio in Local Loop), a terminal unit is connected via a wireless link to an access node (AN). The access node may consist of multiplexers, crossbar switches and various transmitting systems. The WLL  
10 system may be based e.g. on technology used in mobile telephone systems, such as the GSM/DCS1800 technology (GSM, Global System for Mobile Communications; DCS, Digital Cellular System). GSM is a European digital mobile communication system standardised by ETSI. DCS-  
15 1800 is a mobile communication system standardised by ETSI, which is based on the GSM specification and aims at a more effective use of microcells and which works in the frequency range of 1800 MHz. Between the terminal unit and the access node there is a base trans-  
20 ceiver station, through which call signals received from the terminal unit over a radio channel are transmitted via the access node to a public telephone network and vice versa. The access node can be connected to the telephone exchange using e.g. a V5.2 protocol  
25 consistent with the ETS 300 347-1 standard or a V5.1 protocol consistent with the ETS 300 324-1 standard. The access node functions as a converter between GSM signalling and V5 signalling.

During call setup in a local loop, various  
30 checking functions related to network security management are carried out. The checking functions are designed to prevent illicit access to the network for users who have no right to use it, and to prevent the use of e.g. a mobile station reported stolen. The  
35 checking operations defined by the GSM specifications, carried out during call setup, retard the call setup

WO 99/12376

PCT/FI98/00654

2

process so that the VS signalling time-outs are tripped and the call must be disconnected even though it is most likely to be successful. In a wireless local loop, fast setup of an outgoing call is particularly important.

An operation retarding call setup is e.g. change of the subscriber identity code (TMSI reallocation), which means changing the temporary subscriber identity code assigned for the subscriber by the visitor location register and allowing confidential subscriber identification e.g. during the call. Another check retarding call setup is the verification of the subscriber's access right, i.e. subscriber authentication, which means checking the subscriber data of a mobile station and preventing illicit access to the network. A third check retarding call setup is the verification of the subscriber's equipment identity code (IMEI check). To check the equipment identity code, it is compared with a register of equipment identity codes of mobile stations reported stolen and/or defective. IMEI is an international mobile station equipment identity code, by means of which a mobile station can be unambiguously identified.

Especially the time-outs in the PSTN protocol in the VS interface (standard ETS 300 324-1 1 13) cause problems in call setup in a wireless local loop system. For instance, in the case of a terminating call, the time-out according to the VS PSTN protocol between the start message and the acknowledgement message (the telephone rings) is max. 4 seconds (standard ETS 300 324-1 13.6).

The object of the present invention is to eliminate the drawbacks described above.

A specific object of the invention is to present a procedure that can be used to accelerate call setup so that unnecessary tripping of time-outs and needless disconnection of calls are avoided and the

WO 99/12376

PCT/FI98/00654

3

time available for the signalling needed for the call setup itself is increased.

The procedure of the invention is characterised by what is presented in claim 1.

5 According to the invention, to accelerate call setup, checking functions are performed during voice mode connection of the call instead of being performed during call setup. The invention provides the advantage that more time is made available for the  
10 signalling needed for call setup while possible tripping of time-outs and unnecessary disconnection of the call are avoided.

In an embodiment of the procedure, subscriber's terminal units are connected to an access  
15 node via a radio link consistent with the GSM specification and checking functions are carried out, said functions comprising change of the subscriber identity code (TMSI reallocation), verification of subscriber authenticity (authentication) and/or verification of  
20 the subscriber's equipment identity code (IMEI check).

In an embodiment of the procedure, the change of the subscriber identity code is TMSI reallocation consistent with the GSM 04.08 4.3.1. standard.

In an embodiment of the procedure, the verification of subscriber authenticity is an authentication  
25 consistent with the GSM 04.08. 4.3.2 standard.

In an embodiment of the procedure, the verification of the subscriber's equipment identity code is an IMEI check consistent with the GSM 04.08. 4.3.2  
30 standard.

In an embodiment of the procedure, the V5 interface is a V5.2 interface consistent with the ETS 300 347-1 standard.

In an embodiment of the procedure, the V5 interface is a V5.1 interface consistent with the ETS  
35 300 324-1 standard.

WO 99/12376

PCT/FI98/00654

4

The figure presents a signalling diagram representing a call originated by a terminal unit TU in a wireless local loop and substantially corresponding to a mobile-originated call MOC consistent with the GSM specifications. The system components in the diagram are a base transceiver station BTS, an access node AN, i.e. a node of an access network, and a local exchange LE.

The access node AN has three program segments called registers. These are an equipment identity register, an authentication register and, hierarchically above these, a visitor location register. The equipment identity register contains the international mobile station equipment identity numbers (IMEI). An equipment identity number may be placed on a white, grey or black list, and in response to an IMEI check the equipment identity register returns the list colour of the IMEI concerned. The authentication register produces the triplets needed in authentication and contains the data required for authentication. The functions of the visitor location register include making the decision about carrying out the checks.

In the GSM/DCS world, the following register terms are used: authentication centre AUC; AC, equipment identity register EIR and visitor location register VLR. In conjunction with a wireless local loop, the visitor location register is designated WVR (wireless fixed register).

Call setup in a wireless local loop in the so-called non-transparent mode as presented in the figure is substantially identical with call setup in a conventional GSM system. In a wireless local loop system, the access node AN also comprises functions that are included in the mobile switching centre/visitor location register MSC/VLR and home location register/authentication centre/equipment identity register (HLR/AC/EIR) of an ordinary GSM system. In a wireless



WO 99/12376

PCT/FI98/00654

5

local loop, the subscriber terminal units communicate with the access node AN by radio. The signalling between the terminal unit and the access node AN is message based signalling consistent with the GSM specifications (GSM/DCS). The access node AN is connected to a wired network local exchange LE via a V5.2 interface consistent with the ETS 300 347-1 standard.

When the subscriber picks up the receiver, the terminal unit generates a local dial tone. The subscriber has a predetermined period of time to dial the first digit. The dial tone goes out as soon as the first digit has been dialled. The item numbers below correspond to the numbering in the figure.

1. Call setup is started upon the lapse of a predetermined period of time after the last digit has been dialled. The terminal unit TU requests a call by sending a CHANNEL REQUEST message to the base transceiver station BTS.

2. The base transceiver station BTS transmits a CHANNEL\_REQUIRED message to the access node AN, which starts a search to find a communication channel.

3. After a communication channel has been successfully allocated, the access node AN activates the channel by sending a CHANNEL ACTIVATION message to the base transceiver station BTS.

4. The base transceiver station acknowledges activation by returning a CHANNEL ACTIVATION ACK message. The base transceiver station BTS starts transmission and reception on this channel using the power and timing data received in this message.

5. After the communication channel has been successfully activated, the access node AN sends an IMMEDIATE ASSIGNMENT COMMAND message to the base transceiver station BTS.

6. This message contains an IMMEDIATE ASSIGNMENT message, which the base transceiver station BTS sends to the terminal unit TU.

WO 99/12376

PCT/FI98/00634

6

7. Having received the IMMEDIATE ASSIGNMENT message, the terminal unit TU is tuned to the specified communication channel and starts setting up a signalling link over the network. The terminal unit TU  
5 sends a layer-2 SABM message to the base transceiver station BTS via the communication channel. The SABM contains a layer-3 service request message.

8. The base transceiver station sends the service request of the terminal unit further to the  
10 access node AN in an ESTABLISH INDICATION message, which includes the subscriber's temporary mobile subscriber identity (TMSI) code.

9. The base transceiver station BTS acknowledges the SABM message by sending a UA frame to the  
15 terminal unit TU.

10. The access node finds the subscriber's L3 address (using the TMSI and IMSI) and checks the state of the corresponding V5 interface. If call setup is allowed, the access node AN sends an ESTABLISH message  
20 to the local exchange LE.

11. At the same time, the access node AN starts encryption by sending an ENCRYPTION COMMAND message to the base transceiver station BTS. The base transceiver station BTS analyses the command. If en-  
25 cryption is needed, the base transceiver station BTS activates a demodulator for the deciphering of the encryption.

12. If encryption is used, the base transceiver station BTS sends a CIPHERING MODE COMMAND mes-  
30 sage to the terminal unit TU.

13.-14. The local exchange LE sends to the access node AN an ALLOCATION message, which contains the time slot used in the V5.2 interface. The access node AN acknowledges this by sending an ALLOCATION  
35 COMPLETE message to the local exchange LE.

15. After receiving the CIPHERING MODE COMMAND message, the terminal unit TU starts encryp-

WO 99/12376

PCT/F198/00654

7

tion deciphering and ciphering using an available ciphering key and returns to the base transceiver station BTS, in ciphered form, a CIPHERING MODE COMPLETE message or the next message it is to send. Upon receiving the CIPHERING MODE COMPLETE message (or any layer-2 frame correctly ciphered), the base transceiver station BTS starts encryption and transfers the message transparently to the access node AN.

16. When the local exchange LE is ready to receive a dialled number, it sends an ESTABLISH ACK message to the access node AN. A connection between the access node AN and the local exchange LE is set up and the speech path is connected through.

17. The terminal unit TU starts call setup by a SETUP message, which contains e.g. the number of the called subscriber and the call type (voice/data). The access node AN checks in the VLR/HLR database whether call setup is allowed for the subscriber. If the right conditions are fulfilled, then the access node AN sends the DTMF (dual tone multi-frequency) numbers (together with the VS messages) to the local exchange LE.

18. Having sent the numbers, the access node sends a CALL PROCEEDING message to the terminal unit TU, indicating that the call is under processing.

19.-22. The channel mode is changed from signalling to voice via a "mode modify" procedure. First, the access node AN sends a MODE MODIFY message to the base transceiver station BTS to change the channel mode. Synchronisation by a transcoder begins. After receiving a MODE MODIFY ACK message, the access node starts the channel mode change process and sends a CHANNEL MODE MODIFY message to the terminal unit TU. This command is transparent to the base transceiver station BTS. Having received the CHANNEL MODE MODIFY message, the terminal unit TU changes the channel mode from signalling to voice and sends an acknowledgement

WO 99/12376

PCT/FI98/00654

8

to the access node AN with a CHANNEL MODE MODIFY ACK message. This message, too, is transparent to the base transceiver station BTS.

23.-24. The terminal unit TU is set to voice mode by sending a CONNECT message to it. The terminal unit TU acknowledges this by sending a CONNECT ACK message. The subscriber now hears the ring-back tone from the local exchange LE.

25.-26. If the visitor location register VLR of the access node does not recognise the temporary TMSI code, then the international mobile subscriber identity IMSI is requested by an IDENTIFICATION REQUEST message. In response, an IDENTIFICATION RESPONSE message is sent to the terminal unit TU.

27. The access node AN starts authentication by sending an AUTHENTICATION REQUEST message to the terminal unit TU.

28 The terminal unit TU sends a calculated response in an AUTHENTICATION RESPONSE message to the access node AN.

The invention is not restricted to the examples of its embodiments described above, but many variations are possible within the scope of the inventive idea defined by the claims.

WO 99/12376

PCT/FI98/00654

9

## CLAIMS

1. Procedure for setting up a call in a wire-  
less local loop, which is based on mobile communica-  
tion technology and in which terminal units (TU) are  
5 connected via a radio link to an access node (AN) and  
from the access node to a wired network local exchange  
(LE) via a standard V5 interface and in which checking  
functions consistent with a mobile communication  
specification are carried out, characterised  
10 in that, to accelerate call setup, checking functions  
are carried out during voice mode connection of the  
call.

2. Procedure as defined in claim 1, character-  
ised in that subscriber terminal units (TU)  
15 are connected to the access node via a radio link con-  
sistent with the GSM specification; and that checking  
functions are carried out, said functions comprising  
change of the subscriber identity code (TMSI realloca-  
tion), verification of the authenticity of the sub-  
20 scriber (authentication) and/or verification of the  
subscriber's equipment identity code (IMEI check).

3. Procedure as defined in claim 2, character-  
ised in that the change of the subscriber  
identity code is a TMSI reallocation consistent with  
25 the GSM 04.08 4.3.1. standard.

4. Procedure as defined in claim 2 or 3,  
characterised in that the verification of  
subscriber authenticity is an authentication consis-  
tent with the GSM 04.08. 4.3.2 standard.

30 5. Procedure as defined in any one of claims  
2 - 4, characterised in that the verifica-  
tion of the subscriber's equipment identity code is an  
IMEI check consistent with the GSM 04.08. 4.3.3 stan-  
dard.

35 6. Procedure as defined in any one of claims  
1 - 5, characterised in that the V5 inter-

PCT/FI98/00654

7. Procedure as defined in any one of claims 1 - 5, characterised in that the V5 interface is a V5.1 interface consistent with the ETS 300 324-1 standard.

1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Procedure for setting up a call in a wireless local loop, which is based on mobile communication technology and in which terminal units (TU) are connected via a radio link to an access node (AN) and from the access node to a wired network local exchange (LE) via a standard V5 interface and in which checking functions consistent with a mobile communication specification are carried out. To accelerate call setup, checking functions are carried out during voice mode connection of the call.

WO 99/12376

PCT/FI98/00654

1/2

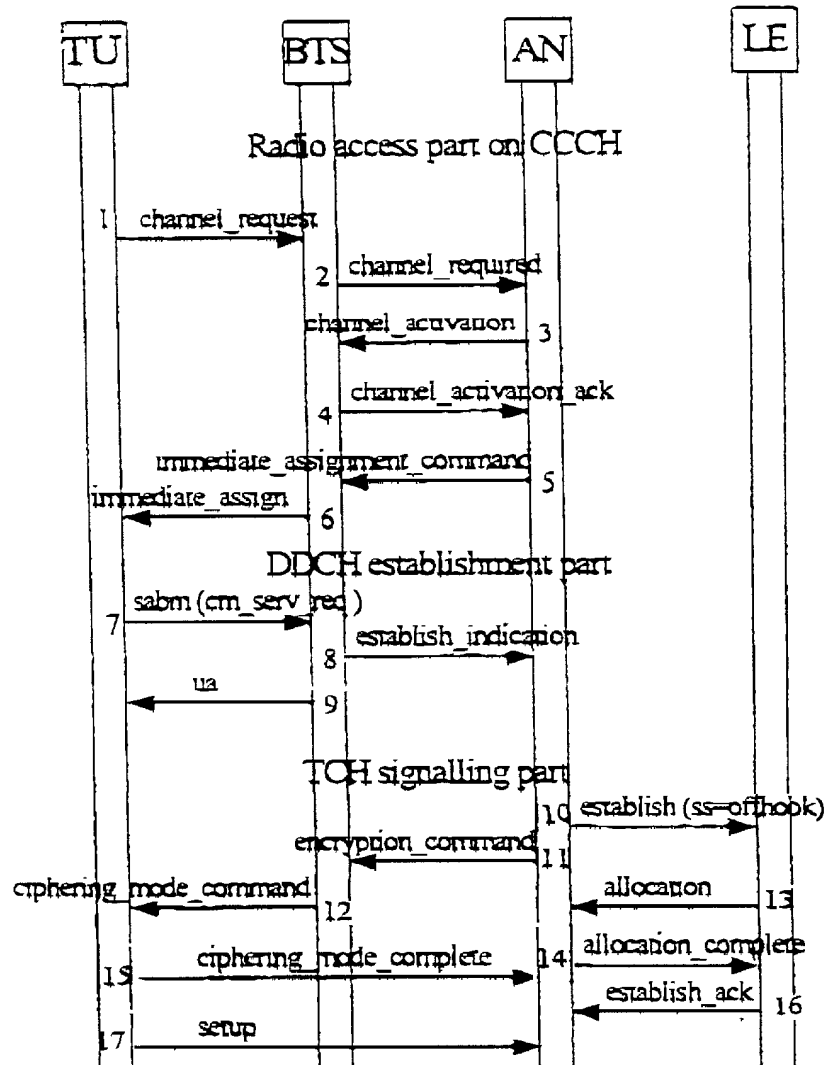


FIG. 1



WO 99/12376

PCT/FI98/00654

2/2

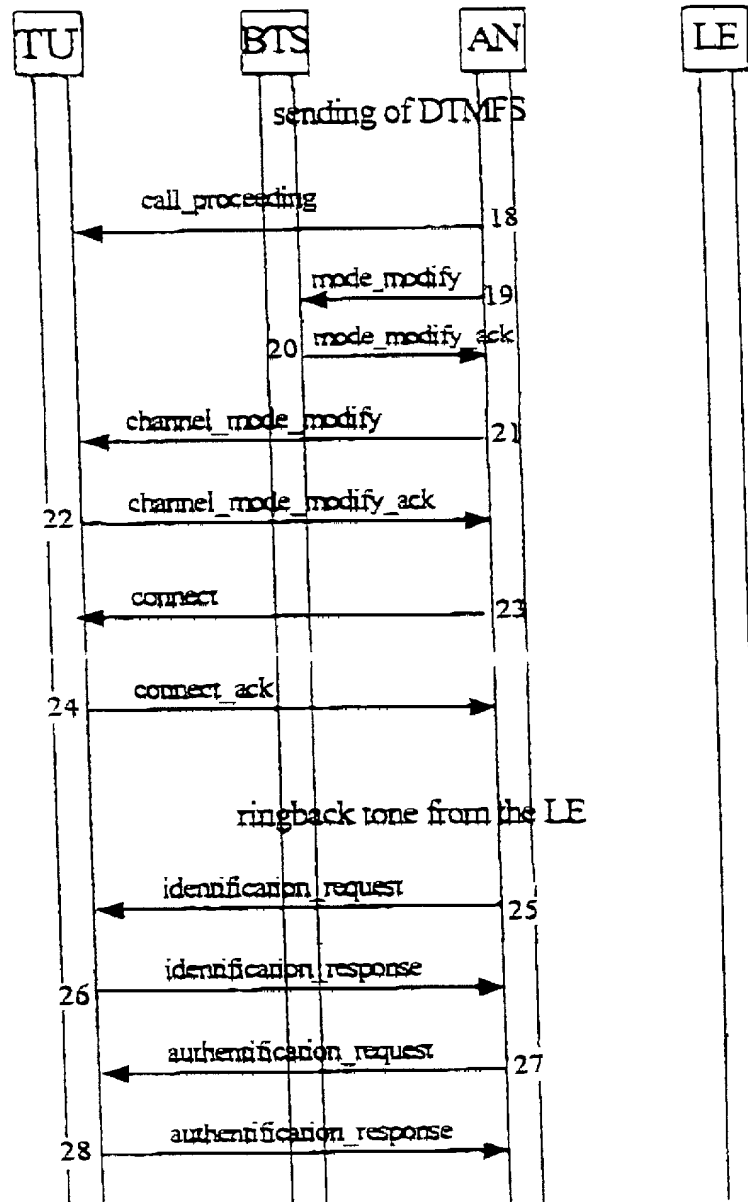


FIG. 2

**Altera Law Group, LLC**

**Declaration and Power of Attorney Patent Application  
(Design or Utility)**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:  
PROCEDURE FOR SETTING UP A CALL IN A WIRELESS LOCAL LOOP

the specification of which

- ☐ is referred to by Altera reference number on a separate document  
☒ is attached hereto  
☐ was filed on 29 February 2000 as application serial no. \_\_\_\_\_ and or PCT International Application number \_\_\_\_\_ and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information know to me to be material to patentability as defined in 37 C.F.R.§1.56.

I hereby claim foreign priority benefits under 35 U.S.C.§119(a)-(d) or 35 U.S.C.§365(b) of any foreign application(s) for patent or inventor's certificate, or 35 U.S.C.§365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below any foreign application for patent or inventor's certificate of PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)		
Number 973579	Country Finland	Day/Month/Year Filed 1 September 1997
Number	Country	Day/Month/Year Filed
Number	Country	Day/Month/Year Filed

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

Prior Provisional Application(s)	
Serial Number	Day/Month/Year Filing Date
Serial Number	Day/Month/Year Filing Date
Serial Number	Day/Month/Year Filing Date

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s), or under 35 U.S.C. §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

Prior U.S. or International Application(s)		
Serial Number PCT/FI98/00654	Day/Month/Year Filed 25 August 1998	Status (patented, pending, abandoned) Pending
Serial Number	Day/Month/Year Filed	Status (patented, pending, abandoned)
Serial Number	Day/Month/Year Filed	Status (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

## Power of Attorney

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Steven R. Funk            Reg. No. 37,830  
Michael B. Lasky        Reg. No. 29,555  
Iain A. McIntyre        Reg. No. 40,337

David W. Lynch        Reg. No. 36,204  
Karen D. McDaniel     Reg. No. 37,674

I hereby authorize them or others whom they may appoint to act and rely on instructions from and communicate directly with the person/organization who/which first sends this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Altera Law Group, LLC otherwise.

Please direct all correspondence in this case to Altera Law Group, LLC at the address indicated below:

Michael B. Lasky  
Altera Law Group, LLC  
10749 Bren Road East, Opus 2  
Minneapolis, MN 55343

Full Name of Sole or First Inventor		
Family Name Rautiainen	First Given Name Jaakko	Second Given Name
Residence and Citizenship		
City of Residence Oulu	State or Country of Residence Finland	Country of Citizenship Finland
Post Office Address		
Street Address Tapiontie 5 A 5	City FIN-90570 Oulu	State & Zip Code or Country Finland
Signature of Inventor		Date